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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,211	02/27/2004	Chein-Wei Jen	BHT-3230-88	4688

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TROXELL LAW OFFICE PLLC  
SUITE 1404  
5205 LEESBURG PIKE  
FALLS CHURCH, VA 22041

EXAMINER
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MOLL, JESSE R

ART UNIT	PAPER NUMBER
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2181

MAIL DATE	DELIVERY MODE
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12/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/787,211

Applicant(s)

JEN ET AL.

Examiner

Jesse R. Moll

Art Unit

2181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5 are rejected under 35 U.S.C. 102(a and e) as being anticipated by Berenbaum et al. (U.S. Patent Number 6658551 B1) herein referred to as Berenbaum.

3. Regarding claim 1, Berenbaum discloses a method for inter-cluster communication that employs register permutation, wherein the clustered functional units (Functional Units [FU]; see fig. 8) have some global registers (Register Files; see fig. 8), and the said clustered functional units exchange data (with Input Crossbar Switch; see fig. 8) without actual data movement (banks are chosen by changing the crossbar switch not by copying data to the other register files; by controlling the crossbar switch,

the connections between register files and functional units is changed without moving data) by exchanging data between the said global registers of each cluster (see col. 7, lines 8-15) by permuting through crossbar switches (Input crossbar switch and Output crossbar switch; see fig. 8).

*Note that crossbar logically switches positions of the global registers, it is interpreted as exchanging data between the registers when viewed in light of the specification. The specification shows that register data is only virtually exchanged in the same way that Berenbaum discloses.*

4. Regarding claim 2, Berenbaum discloses the method for inter-cluster communication that employs register permutation according to claim 1, wherein the register permutation is done by dynamically changing the port mapping between the global registers and the functional units (with Input Crossbar Switch, see fig. 8).

*Note that routing data from one place to another is considered mapping. Therefore, changing the destination of the register is considered changing the port mapping.*

5. Regarding claim 3, Berenbaum discloses the method for inter-cluster communication that employs register permutation according to claim 2, wherein the said port mapping is done by a routing structure (Input Crossbar Switch; see fig. 8).

6. Regarding claim 4, Berenbaum discloses the method for inter-cluster communication that employs register permutation according to claim 1, wherein the size of said portioned register file and number of said ports are both scalable (see cols. 5-7; note the variables N and K showing the scalability).

*Further note that in any register file, the size is scalable. It would always be possible with minimal redesign to change the number of registers or ports. The claim merely states that the register file be able to have different sizes (be scalable).*

7. Regarding claim 5, Berenbaum discloses the method for inter-cluster communication that employs register permutation according to claim 1, further comprising any number of cluster structures (M; see fig. 8).

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-5 have been considered but are not persuasive. Regarding the arguments directed to "the inter-thread communication (i.e., the communications between register files) is not performed through the crossbars", Examiner disagrees. Applicant does not point out where in the prior art Berenbaum states that inter-thread communication is not performed through crossbars.

Berenbaum clearly states that the input selects threads to route data from (see col. 6, lines 60-63) showing that data is transferred between threads / register files.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse R. Moll whose telephone number is (571)272-2703. The examiner can normally be reached on M-F 10:00 am - 6:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571)272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

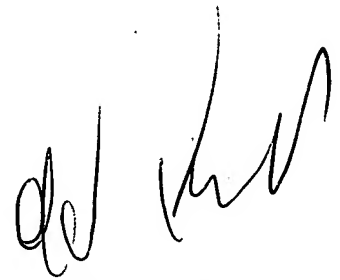
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jesse R Moll  
Examiner  
Art Unit 2181

JM 7/9/2007

A handwritten signature in black ink, appearing to read 'Alford Kindred', is written over the printed name.

ALFORD KINDRED  
SUPERVISORY PATENT EXAMINER